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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/788,891	02/27/2004	Paul S. Palumbo	99097CIPCON	4560

7590  
Cabot Corporation  
Law Department  
157 Concord Road  
Billerica, MA 01821

02/08/2007

EXAMINER
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SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/08/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/788,891

Applicant(s)

PALUMBO ET AL.

Examiner

Callie E. Shosho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,5-15,17-18,21-25,34,35 and 40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-14,21-24,34,35 and 40 is/are rejected.
- 7) ☒ Claim(s) 15,17,18 and 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

1. All outstanding rejections except for those described below are overcome by applicants' amendment filed 11/8/06.

**Claim Rejections - 35 USC § 102**

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1 and 8-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Moffatt et al. '932 (U.S. 6,221,932) taken in view of the evidence in *Organic Chemistry*.

The rejection is adequately set forth in paragraph 4 of the office action mailed 5/9/06 and is incorporated here by reference.

4. Claims 1, 5, 8-9, 12, 14, and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 99/31175.

The rejection is adequately set forth in paragraph 5 of the office action mailed 5/9/06 and is incorporated here by reference.

5. Claims 1, 8-10, 12-13, and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Kwan (U.S. 6,235,829).

The rejection is adequately set forth in paragraph 6 of the office action mailed 5/9/06 and is incorporated here by reference.

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6. Claims 21-22, 24, 34-35, and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Moffatt et al. '257 (U.S. 6,323,257).

The rejection is adequately set forth in paragraph 7 of the office action mailed 5/9/06 and is incorporated here by reference.

**Claim Rejections - 35 USC § 103**

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moffatt et al. '257 (U.S. 6,323,257).

The rejection is adequately set forth in paragraph 10 of the office action mailed 5/9/06 and is incorporated here by reference.

9. Claims 1, 5-9, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moffatt et al. '257 (U.S. 6,323,257) in view of WO 99/31175.

The rejection is adequately set forth in paragraph 12 of the office action mailed 5/9/06 and is incorporated here by reference.

**Response to Arguments**

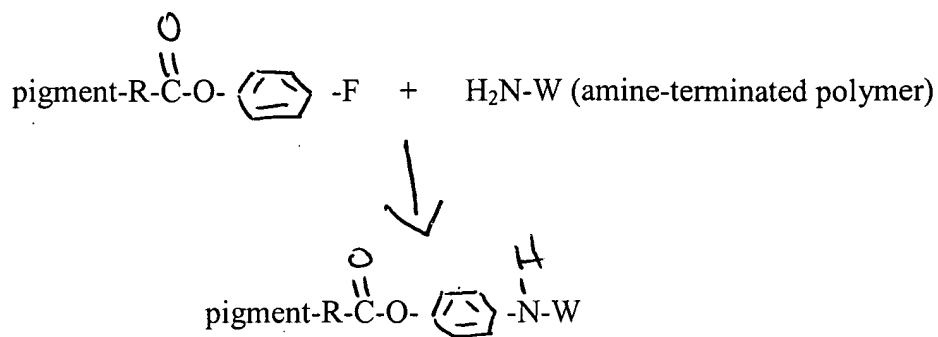
10. Applicants' arguments filed 11/8/06 have been fully considered but they are not persuasive.

Specifically, applicants argue that Moffatt et al. '932 is not a relevant reference against the present claims given that while Moffatt et al. '932 disclose reacting pigment having attached aromatic ester group with polymer, the aromatic groups of Moffatt et al. '932 are not the types that undergo addition-elimination as presently claimed. Applicants argue that an addition-elimination of a substituted aromatic group involves replacement of the substituent by reacting species wherein the reaction occurs on the aromatic ring while the aromatic ring of Moffatt et al. '932 undergoes nucleophilic substitution which reaction occurs at the ester carbonyl and wherein there is no replacement of the ester group.

However, while Moffatt et al. '932 do disclose that the aromatic ester undergoes nucleophilic substitution this does not mean that the aromatic ester group does not or cannot undergo addition-elimination reaction. Evidence to support this position is found on page 1035 of *Organic Chemistry* which discloses that elimination-addition is a specific type of nucleophilic substitution or specific mechanism used in nucleophilic substitution. Thus, it is clear that the broad disclosure in Moffatt et al. '932 of nucleophilic substitution includes addition-elimination reactions as presently claimed.

Further, it is noted that the aromatic group, i.e. first chemical group, of Moffatt et al. '932 is of the formula  $R-\overset{\overset{O}{\parallel}}{C}-O-\langle \text{benzene ring} \rangle-Y$  where Y includes fluorine. When this first chemical group is attacked with nucleophile such as amine-terminated polymer as disclosed by Moffatt et al. '932, then it would appear that the electrophilic fluorine in the aromatic ring will be eliminated and its position in the aromatic ring will be occupied by the nucleophile as seen below:

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Applicants argue that WO 99/31175 is not a relevant reference against the present claims given that WO 99/31175 does not disclose modified pigment as presently claimed.

However, it is the examiner's position that the third type of modified carbon black disclosed by WO 99/31175, i.e. carbon black having attached organic group to which is attached ionic or ionizable group to which is attached counterionic group (page 16, lines 8-26), does disclose the presently claimed modified pigment. The organic group which is attached to the pigment is aliphatic group such as those derived from aldehydes, ketones, carboxylic acids, etc. (page 11, lines 3-13) or an aromatic group (page 5, line 21) having attached functional group such as amine, carboxylates, cyano group, halogen, etc. (page 6, lines 4-25 and page 11, lines 16-27) to which is attached ionic or ionizable group such as amine group (col.12, line 14-col.13, line 11), to which is attached counterionic group with at least one organic group as previously described or polymer group that includes polyamide (page 5, lines 16-19). Thus, it appears that WO 99/31175 does disclose electrophiles and nucleophiles as presently claimed. While applicants argue that the groups are attached using counterion exchange, it is noted that there is no requirement in the present claims regarding the mechanism by which the groups attached to the pigment react with each other. The present claims only require that the first group react with second group to form modified pigment which is then reacted with additional group, i.e.

polymer. Given that WO 99/331175 discloses reacting first group, i.e. organic group, with second group, i.e. ionic or ionizable group, and then with counterionic group, it is the examiner's position that WO 99/31175 meets the requirements of the present claims.

Applicants argue that Kwan is not a relevant reference against the present claims given that there is no disclosure in Kwan that the pigment having attached first chemical group is prepared by reacting diazonium salt having the first chemical group with at least one type of pigment to form pigment having first chemical group.

It is agreed that there is no disclosure in Kwan that the pigment having attached first chemical group is prepared by reacting diazonium salt having the first chemical group with at least one type of pigment.

However, although Kwan does not disclose that the pigment having attached first chemical group is prepared by reacting diazonium salt having the first chemical group with at least one type of pigment, it is noted that "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process", *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Further, "although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product", *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983). See MPEP 2113.

Therefore, absent evidence of criticality regarding the presently claimed process and given Kwan disclose product as presently claimed, i.e. pigment having attached first chemical group, it is the examiner's position that Kwan meets the requirements of the present claims.

Applicants argue that Moffatt et al. '257 is not a relevant reference against the present claims given that Moffatt et al. '257 clearly teaches modified pigment which is reaction product of polymerization reaction with attached reactive group, i.e. 2-(sulfatoethyl)-sulfone, which is in direct contrast to the present claims that require modified pigment comprising pigment having attached at least one organic group which is the reaction product of at least one (2-sulfatoethyl) sulfone group and at least one nucleophilic polymer.

It is agreed that the modified pigment of Moffatt et al. '257 is prepared by reacting polymer having first chemical group, i.e. (2-sulfatoethyl) sulfone, with monomer which is then polymerized resulting in covalently attached polymer. However, it is noted that the end result of Moffatt et al. '257 is the same as presently claimed, i.e. the attachment of nucleophilic polymer to the reactive group that is attached to the pigment. This can be seen in Figure 1 of Moffatt et al. '257 that shows that the polymeric group is attached to the pigment.

It is noted that "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process", *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Further, "although produced by a different process,



the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product”, *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983). See MPEP 2113.

Therefore, absent evidence of criticality regarding the presently claimed process and given that Moffatt et al. ‘257 disclose product as presently claimed, i.e. pigment having nucleophilic polymer attached to (2-sulfatoethyl)-sulfone group that is attached to pigment, it is the examiner’s position that Moffatt et al. ‘257 meets the requirements of the present claims.

Applicants also argue that the polymer pointed to by the examiner, i.e. obtained from ester of acrylic acid and containing polyalkylene glycol, is not a nucleophilic polymer.

However, it is noted that col.6, line 30 of Moffatt et al. ‘257 pointed to by the examiner in paragraph 7 of the office action mailed 5/9/06 discloses the use of monomers including alkylene glycols and their ethers derived from acrylic and methacrylic acid which clearly encompasses polymer obtained from alkylene glycol. As set forth on page 9, line 27 of the present specification, polyalkylene glycol is a nucleophilic polymer within the scope of the present claims. Further, the examiner also pointed to Table bridging cols. 5-6/7-8 which includes monomers utilized to obtain nucleophilic polymer. Specific examples of such monomers are found in cols.11-12 and include monomers such as dimethylaminoethyl acrylate.

**Allowable Subject Matter**

11. Claims 15, 17-18, and 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 15, 17-18 and 25 would be allowable if rewritten in independent form as described above given that there is no disclosure in the “closest” prior art Moffatt et al. ‘932 (U.S. 6,221,932), WO 99/31175, Kwan (U.S. 6,235,829), or Moffatt et al. ‘257 (U.S. 6,323,257) of method of making modified pigment comprising reacting a pigment having attached first chemical group with a second chemical group to form a pigment having attached a third chemical group wherein the method further comprises reacting the third chemical group with at least one additional second chemical group wherein the additional second group comprises at least one electrophile and the third chemical group comprises at least one nucleophile and wherein the additional second chemical group comprises a carboxylic acid group, an acid chloride group, or an anhydride group as required in present claims 15 and 17-18. Further, there is no disclosure in Moffatt et al. ‘932, WO 99/31175, Kwan, or Moffatt et al. ‘257 of modified pigment having attached at least one organic group wherein said organic group comprises the reaction product of at least one (2-sulfatoethyl)-sulfone group and at least one nucleophilic polymer wherein the nucleophilic polymer is polyethyleneimine as required in present claim 25.

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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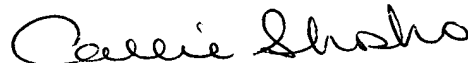
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 571-272-1123. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Callie E. Shosho  
Primary Examiner  
Art Unit 1714

CS

2/4/07